CLAIMS

1. A compound of the general formula I

$$(Y^1)_m\text{-}Ar^1(X^1)\text{-}C(=O)VAr^2(X^2)\text{-}(Y^2)_p \qquad I$$

wherein

V designates $-CH_2-CH_2-$, -CH=CH- or -C≡C-;

Ar^1 and Ar^2 independently are selected from aryl and heteroaryl;

m is an integer selected from the group consisting of 0, 1, and 2,
p is an integer selected from the group consisting of 0, 1, and 2,
wherein the sum of m and p is at least 1;

each Y^1 and Y^2 independently represents a substituent selected from A, B, and C

$$-Z\text{-}N^+(R^1)(R^2)R^4\ Q^-, \qquad (A)$$
$$-NR^3\text{-}Z\text{-}N^+(R^1)(R^2)R^4\ Q^-, \text{ and} \qquad (B)$$
$$-O\text{-}Z\text{-}N^+(R^1)(R^2)R^4\ Q^-; \qquad (C)$$

wherein Z is a biradical $-(C(R^H)_2)_n-$, wherein n is an integer in the range of 1-6 and each R^H is independently selected from hydrogen and C_{1-6}-alkyl, or wherein $(R^H)_2$ is =O;

R^1, R^2 and R^4 independently are selected from optionally substituted C_{1-12}-alkyl, optionally substituted C_{2-12}-alkenyl, optionally substituted C_{4-12}-alkadienyl, optionally substituted C_{6-12}-alkatrienyl, optionally substituted C_{2-12}-alkynyl, optionally substituted C_{1-12}-alkoxycarbonyl, optionally substituted C_{1-12}-alkylcarbonyl, optionally substituted aryl, optionally substituted aryloxycarbonyl, optionally substituted arylcarbonyl, optionally substituted heteroaryl, optionally substituted heteroaryloxycarbonyl, optionally substituted heteroarylcarbonyl, aminocarbonyl, mono- and di(C_{1-6}-alkyl)aminocarbonyl, amino-C_{1-6}-alkyl-aminocarbonyl, mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-aminocarbonyl; or R^1 and R^2 together with the nitrogen atom to which they are attached ($-N(R^1)R^2$) form an optionally substituted nitrogen-containing heterocyclic ring;

R^3 is selected from hydrogen, C_{1-6}-alkyl, and C_{1-6}-alkylcarbonyl, said alkyl and alkylcarbonyl optionally carrying substituent(s) selected from halogen, hydroxy, C_{1-6}-alkoxy, carboxy, C_{1-6}-alkoxycarbonyl, C_{1-6}-alkylcarbonyl, amino, mono- and di(C_{1-6}-alkyl)amino, and aryl optionally substituted 1-3 times with C_{1-4}-alkyl, C_{1-4}-alkoxy, nitro, cyano, amino or halogen; or R^1 and R^3 together form a biradical Z^* which is as defined for Z;

Q is an anion;

X^1 and X^2 independently designate a substituent present 0-5 times on Ar^1 and Ar^2, respectively, each X^1 and X^2 independently being selected from the group consisting of optionally substituted C_{1-12}-alkyl, optionally substituted C_{2-12}-alkenyl, optionally substituted C_{4-12}-alkadienyl, optionally substituted C_{6-12}-alkatrienyl, optionally substituted C_{2-12}-alkynyl, hydroxy, optionally substituted C_{1-12}-alkoxy, optionally substituted C_{2-12}-alkenyloxy, carboxy, optionally substituted C_{1-12}-alkoxycarbonyl, optionally substituted C_{1-12}-alkylcarbonyl, formyl, C_{1-6}-alkylsulphonylamino, optionally substituted aryl, optionally substituted aryloxycarbonyl, optionally substituted aryloxy, optionally substituted arylcarbonyl, optionally substituted arylamino, arylsulphonylamino, optionally substituted heteroaryl, optionally substituted heteroaryloxycarbonyl, optionally substituted heteroaryloxy, optionally substituted heteroarylcarbonyl, optionally substituted heteroarylamino, heteroarylsulphonylamino, optionally substituted heterocyclyl, optionally substituted heterocyclyloxycarbonyl, optionally substituted heterocyclyloxy, optionally substituted heterocyclylcarbonyl, optionally substituted heterocyclylamino, heterocyclylsulphonylamino, amino, mono- and di(C_{1-6}-alkyl)amino, carbamoyl, mono- and di(C_{1-6}-alkyl)aminocarbonyl, amino-C_{1-6}-alkyl-aminocarbonyl, mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-aminocarbonyl, C_{1-6}-alkylcarbonylamino, amino-C_{1-6}-alkyl-carbonylamino, mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-carbonylamino, cyano, guanidino, carbamido, C_{1-6}-alkanoyloxy, C_{1-6}-alkylsulphonyl, C_{1-6}-alkylsulphinyl, C_{1-6}-alkylsulphonyloxy, aminosulfonyl, mono- and di(C_{1-6}-alkyl)aminosulfonyl, nitro, optionally substituted C_{1-6}-alkylthio, and halogen, where any nitrogen-bound C_{1-6}-alkyl is optionally substituted with hydroxy, C_{1-6}-alkoxy, C_{2-6}-alkenyloxy, amino, mono- and di(C_{1-6}-alkyl)amino, carboxy, C_{1-6}-alkylcarbonylamino, halogen, C_{1-6}-alkylthio, C_{1-6}-alkyl-sulphonyl-amino, or guanidino;

and salts thereof.

2. The compound according to claim 1, wherein R^1, R^2 and R^4 independently are selected from optionally substituted C_{1-12}-alkyl, optionally substituted C_{2-12}-alkenyl, optionally substituted C_{2-12}-alkynyl, optionally substituted C_{1-12}-alkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, aminocarbonyl, mono- and di(C_{1-6}-alkyl)aminocarbonyl, amino-C_{1-6}-alkyl-aminocarbonyl, and mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-aminocarbonyl.

3. The compound according to any of the preceding claims, wherein R^3 is selected from hydrogen and methyl.

4. The compound according to any of the preceding claims, wherein X^1 and X^2 independently designates 0-4 substituents, where such optional substituents independently are selected from optionally substituted C_{1-12}-alkyl, hydroxy, optionally substituted C_{1-12}-alkoxy, optionally

substituted C_{2-12}-alkenyloxy, carboxy, optionally substituted C_{1-12}-alkylcarbonyl, formyl, C_{1-6}-alkylsulphonylamino, optionally substituted aryl, optionally substituted aryloxycarbonyl, optionally substituted aryloxy, optionally substituted arylcarbonyl, optionally substituted arylamino, arylsulphonylamino, optionally substituted heteroaryl, optionally substituted heteroarylamino, optionally substituted heteroarylcarbonyl, optionally substituted heteroaryloxy, heteroarylsulphonylamino, optionally substituted heterocyclyl, optionally substituted heterocyclyloxy, optionally substituted heterocyclylamino, amino, mono- and di(C_{1-6}-alkyl)amino, carbamoyl, mono- and di(C_{1-6}-alkyl)aminocarbonyl, amino-C_{1-6}-alkyl-aminocarbonyl, mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-aminocarbonyl, C_{1-6}-alkylcarbonylamino, amino-C_{1-6}-alkyl-carbonylamino, mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-carbonylamino, guanidino, carbamido, C_{1-6}-alkylsulphonyl, C_{1-6}-alkylsulphinyl, C_{1-6}-alkylsulphonyloxy, optionally substituted C_{1-6}-alkylthio, aminosulfonyl, mono- and di(C_{1-6}-alkyl)aminosulfonyl, and halogen, where any nitrogen-bound C_{1-6}-alkyl may be substituted with a substituent selected from the group consisting of hydroxy, C_{1-6}-alkoxy, and halogen.

5. The compound according to any of the preceding claims, wherein R^1, R^2 and R^4 independently are selected from optionally substituted C_{1-6}-alkyl, optionally substituted C_{1-6}-alkylcarbonyl, heteroarylcarbonyl, aminocarbonyl, mono- and di(C_{1-6}-alkyl)aminocarbonyl, amino-C_{1-6}-alkyl-aminocarbonyl, and mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-aminocarbonyl.

6. The compound according to any of the preceding claims, wherein X^1 and X^2 independently designate 0-3 substituents, such optional substituents independently being selected from optionally substituted C_{1-6}-alkyl, hydroxy, optionally substituted C_{1-6}-alkoxy, carboxy, optionally substituted C_{1-6}-alkylcarbonyl, C_{1-6}-alkylsulphonylamino, optionally substituted aryl, optionally substituted aryloxy, optionally substituted arylamino, arylsulphonylamino, optionally substituted heteroaryl, optionally substituted heteroarylamino, heteroarylsulphonylamino, amino, mono- and di(C_{1-6}-alkyl)amino, carbamoyl, C_{1-6}-alkyl-carbonylamino, guanidino, carbamido, optionally substituted C_{1-6}-alkylthio, optionally substituted heterocyclyl, optionally substituted heterocyclyloxy, optionally substituted heterocyclylamino and halogen, where any nitrogen-bound C_{1-6}-alkyl may be substituted with a substituent selected from the group consisting of hydroxy, C_{1-6}-alkoxy, and halogen.

7. The compound according to any of the preceding claims, wherein V designates -CH=CH-.

8. The compound according to any of the preceding claims, wherein at least one of Ar^1 and Ar^2 is phenyl.

9. The compound according to claim 8, wherein both of Ar^1 and Ar^2 are phenyl, m is 1 or 2, and p is 0, 1 or 2.

10. The compound according to any of the preceding claims, wherein X^2 represents at least one substituent selected from C_{1-6}-alkyl, C_{1-6}-alkoxy, C_{1-6}-alkylcarbonyl, optionally substituted aryl, optionally substituted aryloxy, optionally substituted arylamino, optionally substituted heteroaryl, optionally substituted heteroarylamino, mono- and di(C_{1-6}-alkyl)amino, C_{1-6}-alkylcarbonylamino, optionally substituted C_{1-6}-alkylthio, optionally substituted heterocyclyl, optionally substituted heterocyclyloxy, optionally substituted heterocyclylamino and halogen.

11. The compound according to any of the preceding claims, wherein X^2 represents at least two halogen atoms.

12. The compound according to any of claims 1-8 and 10-11, wherein at least one of Ar^1 and Ar^2 is selected from the group consisting of thiazolyl, pyrrolyl, imidazolyl, pyrazolyl, pyridinyl, pyrimidinyl, pyrazinyl, pyridazinyl, thienyl, quinolyl, isoquinolyl, and indolyl.

13. The compound according to any of the preceding claims, wherein Z is $-(CH_2)_n-$, wherein n is 1-4.

14. The compound according to any of the preceding claims, wherein one of Y^1 and Y^2 represents a substituent of the formula A

$$-CH_2-N^+(R^1)(R^2)R^4\ Q^- \qquad (A)$$

wherein R^1, R^2 and R^4 are independently C_{1-6}-alkyl.

15. The compound according to any of claims 13-14, wherein Y^1 represents a substituent of the formula $-CH_2-N^+(R^1)(R^2)R^4\ Q^-$.

16. The compound according to any of the preceding claims, wherein one of Y^1 and Y^2 represents a substituent of the formula B

$$-NR^3-(CH_2)_{2-3}-N^+(R^1)(R^2)R^4\ Q^- \qquad (B)$$

wherein R^3 is selected from hydrogen and methyl, and R^1, R^2 and R^4 are independently C_{1-6}-alkyl.

17. The compound according to any of the preceding claims, wherein one of Y^1 and Y^2 represents a substituent of the formula C

$$-O-(CH_2)_{2-3}-N^+(R^1)(R^2)R^4\ Q^- \qquad (C)$$

wherein R^1, R^2 and R^4 are independently C_{1-6}-alkyl.

18. The compound according to any of claims 14-17, wherein V is -CH=CH-, and Ar^1 and Ar^2 both are phenyl.

19. The compound according to claim 1, which is selected from the group consisting of:

(2-{3-[3-(2-Chloro-4-methoxy-phenyl)-3-oxo-propenyl]-3',5'-dimethyl-biphenyl-4-yloxy}-ethyl)-trimethyl-ammonium, iodide;
(2-{3-[3-(4-Amino-phenyl)-3-oxo-propenyl]-3',5'-dimethyl-biphenyl-4-yloxy}-ethyl)-trimethyl-ammonium, iodide;
(2-{3-[3-(2-Amino-phenyl)-3-oxo-propenyl]-3',5'-dimethyl-biphenyl-4-yloxy}-ethyl)-trimethyl-ammonium, iodide;
4-{3-[3-(2-Fluoro-4-methoxy-phenyl)-3-oxo-propenyl]-2'-methoxy-biphenyl-4-yl}-1,1-dimethyl-piperazin-1-ium, iodide;
{3-[3-(4-Dibutylamino-phenyl)-acryloyl]-benzyl}-trimethyl-ammonium, iodide;
3-[4-(2-Trimethylammonium-ethoxy)-biphenyl-3-yl]-1-(3-trimethylammonium-phenyl)-propenone, di-iodide; and
3-[4-(2-trimethylammonium-ethoxy)-3',5'-dimethyl-biphenyl-3-yl]-1-(2-trimethylammonium-4-methoxy-phenyl)-propenone, di-iodide.

20. A pharmaceutical composition comprising a compound as defined in any of the claims 1-19 in combination with a pharmaceutically acceptable carrier.

21. A compound as defined in any of the claims 1-19 for use as a drug substance.

22. Use of a compound as defined in any of the claims 1-19, for the preparation of a pharmaceutical composition for the treatment of bacterial infections.

23. The use according to claim 22, wherein the bacterial infection is associated with bacteria selected from the group consisting of Gram-positive bacteria, Gram-negative bacteria, microaerophilic bacteria and anaerobic bacteria.

24. The use according to claim 23, wherein the bacteria is a microaerophilic bacteria associated with gastric disease, such as *Helicobacter pylori*.

25. The use according to claim 23, wherein the bacteria is selected from antibiotic-sensitive and -resistant strains of *S.aureus*.

26. The use according to claim 23, wherein the bacteria is selected from antibiotic-sensitive and -resistant strains of *E.faecium*.

27. The use according to claim 23, wherein the bacteria is selected from a *S.pneumoniae* and *S.pyogenes*.

28. The use according to claim 23, wherein the bacteria is a member of *Enterobacteriaceae*, e.g. E.coli.

29. The use according to claim 23, wherein the bacteria is a pathogenic anaerobic bacteria, such as *Bacteroides fragilis* or *Clostridium species*.

30. A method for the preparation of a compound of the general formula I as defined in any of claims 1-19 wherein V is -CH=CH-, comprising the steps

(a) combining a ketone derivative of formula $(Y^3)_m$-$Ar_1(X^1)$-$C(=O)$-CH_3 with an aldehyde derivative of formula HCO-$Ar^2(X^2)$-$(Y^4)_p$ so as to form a mixture, whereby a compound of the general formula II

$$(Y^3)_m\text{-}Ar^1(X^1)\text{-}C(=O)VAr^2(X^2)\text{-}(Y^4)_p \qquad \text{II}$$

wherein Ar^1, Ar^2, X^1, X^2, V, m and p are as defined in claim 1, and wherein each Y^3 and Y^4 independently represents a substituent selected from A', B', and C'

$-Z\text{-}N(R^1)R^2$,	(A')
$-NR^3\text{-}Z\text{-}N(R^1)R^2$, and	(B')
$-O\text{-}Z\text{-}N(R^1)R^2$;	(C')

wherein Z, R^1, R^2 and R^3 are as defined in claim 1;

is obtained; and

(b) treating the compound of the general formula II with an alkylating agent or an acylating agent so as to obtain the compound of the general formula I

$$(Y^1)_m\text{-}Ar^1(X^1)\text{-}C(=O)VAr^2(X^2)\text{-}(Y^2)_p \qquad \text{I.}$$

31. A method for treating bacterial infections in a mammal comprising administration of a compound as defined in any of claims 1-19.

32. The method according to claim 31, wherein the bacterial infection is associated with bacteria selected from Gram-positive bacteria, Gram-negative bacteria, microaerophilic bacteria and anaerobic bacteria.

33. The method according to claim 32, wherein the bacteria is a microaerophilic bacteria, associated with gastric disease, such as *Helicobacter pylori*.

34. The method according to claim 32, wherein the bacteria is selected from antibiotic-sensitive and -resistant strains of *S.aureus*.

35. The method according to claim 32, wherein the bacteria is selected from antibiotic-sensitive and -resistant strains of *E.faecium*.

36. The method according to claim 32, wherein the bacteria is selected from *S.pneumoniae* and *S.pyogenes*.

37. The method according to claim 32, wherein the bacteria is a member of *Enterobacteriaceae*, e.g. E.coli.

38. The method according to claim 32, wherein the bacteria is a pathogenic anaerobic bacteria, such as *Bacteroides fragilis* or *Clostridium species*.